

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

Rec'd PCT/PTO 27 SEP 2005

PCT/JP2003/014887



(PCT Article 36 and Rule 70)

| | | |
|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| Applicant's or agent's file reference 03NPCT005 | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) | |
| International application No. PCT/JP2003/014887 | International filing date (day/month/year) 21 November 2003 (21.11.2003) | Priority date (day/month/year) 22 November 2002 (22.11.2002) |
| International Patent Classification (IPC) or national classification and IPC H03L 7/10, 7/199, 7/18 | | |
| Applicant NEC CORPORATION | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
- ☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 19 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

| | |
|-------------------------------------------------------------------|------------------------------------------------------------------|
| Date of submission of the demand 21 November 2003 (21.11.2003) | Date of completion of this report 20 August 2004 (20.08.2004) |
| Name and mailing address of the IPEA/JP | Authorized officer |
| Facsimile No. | Telephone No. |

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP2003/014887

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
 pages 1-5, 11, 15-16, 18, 20-21, as originally filed
 pages _____, filed with the demand
 pages 6-10, 12-14, filed with the letter of 06 May 2004 (06.05.2004)
- ☒ the claims:
 pages 2, 4, 12, 20, 27, as originally filed
 pages _____, as amended (together with any statement under Article 19
 pages _____, filed with the demand
 pages 1, 3, 5-11, 13-19, 21-26, filed with the letter of 06 May 2004 (06.05.2004)
- ☒ the drawings:
 pages 1-12, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | | |
|-------------------------------|--------|------|-----|
| Novelty (N) | Claims | 1-27 | YES |
| | Claims | | NO |
| Inventive step (IS) | Claims | 1-27 | YES |
| | Claims | | NO |
| Industrial applicability (IA) | Claims | 1-27 | YES |
| | Claims | | NO |

2. Citations and explanations

Document 1: JP 07-336556 A (Fujitsu General Limited), 22 December 1995, page 6, right column, line 29 to page 7, left column, line 13; fig. 1

Document 2: JP 05-300470 A (Fujitsu General Limited), 12 November 1993, page 3, left column, line 2 to page 3, right column, line 17; fig. 1

Document 3: JP 2002-261607 A (Sanyo Electric Co., Ltd.), 13 September 2002, page 3, right column, line 45 to page 6, left column, line 8; fig. 1

Document 4: JP 06-104748 A (Matsushita Electric Industrial Co., Ltd.), 15 April 1994, page 4, right column, line 16 to page 7, left column, line 28; fig. 1; fig. 8 & US 5389898 A

Document 5: JP 08-107351 A (Asahi Kasei Microsystems Co., Ltd.), 23 April 1996, page 3, right column, line 39 to page 6, left column, line 43; fig. 1

The invention set forth in claims 1 to 27 involves an inventive step in relation to documents 1 to 5 cited in the international search report.

Documents 1 to 5 do not disclose a feature wherein the frequency dividing means is reset based on a reference signal when switching bands of an oscillator, and it would

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not be easy for a person skilled in the art to conceive of
said feature in the light of documents 1 to 5.

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

(1) Claims 4, 12 and 20 contain the wording "the aforementioned phase control signal", but a "phase control signal" is not disclosed prior to this disclosure, and it is unclear what this signal is, and to what the "aforementioned" refers to.

(2) The description and drawings do not disclose a selecting means which carries out switching between "output of a plurality of oscillators", "a plurality of resonance circuits", and "the number of delay circuits connected" based on the "history" of phase difference signals or phase control signals, as disclosed in claims 4, 12 and 20.

(Referring to fig. 3, fig. 7 and fig. 9, a selection means (6) is disclosed which carries out switching of oscillator control voltage (S4) based on the "history" of phase difference signals using history counters (427, 428). Moreover, the "history" of phase difference signals is irrelevant when switching between "output of a plurality of oscillators", "a plurality of resonance circuits", and "the number of connections of delay circuits" using the counter (426).)

(3) The description and drawings do not disclose the feature set forth in claims 10, 18 and 26, wherein a phase control voltage is set higher or lower than the intermediate electric potential of two threshold voltages according to whether the phase control voltage is higher than two threshold voltages or smaller than two threshold voltages.

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VIII. Certain observations on the international application

(4) In this invention, if signal S14 (the output signal of constituent element (8) which is thought to have to be EX-OR) is not necessarily synchronized with a reference signal, hence the reset point (or the reset release point, i.e. the point at which counter operation starts) for the frequency divider (5) is not determined by the reference signal, and is determined by the signal S14, the output phase of the frequency divider (5) may not necessarily synchronize with the reference signal. In other words, the relation between the output phase of divider (5) and the phase of the reference signal is unclear, and the reason why the invention of this application is able to resolve the problem addressed by the invention of this application is unclear.